
मसाले — अजवायन
(बिशप्स सीड) — विशिष्टि
(तीसरा पुनरीक्षण)

Spices and Condiments — Ajowan
(Bishops Seed) — Specification
(Third Revision)

ICS 67.220.10

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भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली – 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002
www.bis.gov.in www.standardsbis.in

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Spices and Condiments Sectional Committee had been approved by the Food and Agriculture Divisional Council.

AJOWAN known as Bishop's seed or lovage, is the dried ripe fruit of the plant botanically known as *Trachyspermum ammi* (Linn.) Sprague. It is one of the commonly used spices in the country and it has medical applications also.

This standard was originally published in 1967 and first revised in 1979 to update it on the basis of experiences gained in its usage and changing the nomenclature of *AJOWAN* from seed to fruit. The second revision was done in 2010, when the requirements were updated to align with the standards for *AJOWAN* laid down under the Prevention of Food *Adulteration Rules*, 1955. The categorization of *AJOWAN* into three grades was removed and only a single specification was prescribed. This third revision is being carried out to align the standard with regulations laid under *Food Safety and Standards Act*, 2006 regarding microbiological requirements, limits for aflatoxin and the references of this standard have been updated.

In the preparation of this standard due consideration has been given to the *Food Safety and Standards Act*, 2006 and the Rules and the Regulations framed thereunder and the *Legal Metrology (Packaged Commodities) Rules*, 2011. However, this standard is subject to restrictions imposed under these rules, wherever applicable.

The composition of the technical committee responsible for formulation of this standard is given at Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

**SPICES AND CONDIMENTS — AJOWAN
(BISHOPS SEED) — SPECIFICATION**

(Third Revision)

1 SCOPE

This standard prescribes the requirements and methods of test for *AJOWAN* [*Trachyspermum ammi* (Linn.) Sprague] fruits, whole.

AJOWAN is also known as Bishop's seed.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

<i>IS No.</i>	<i>Title</i>
1070 : 1992	Reagent grade water (third revision)
1797 : 2017	Spices and condiments — Methods of test (third revision)
5887 (Part 3) : 1999/ ISO 6579 : 1993	Methods for detection of bacteria responsible for food poisoning: Part 3 General guidance on methods for the detection of salmonella (second revision)
5887 (Part 6) : 2012/ ISO 7932 : 2004	Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of presumptive bacillus cereus: Part 6 colony — Count technique at 30 °C (first revision)
13145 : 2014	Spices and condiments — Methods of sampling (second revision)

*IS No.**Title*

14216 : 1994

Code for hygienic conditions
for spices and condiments
processing units

ISO 15213 : 2003

Microbiology of food and
animal feeding stuffs —
Horizontal method for the
enumeration of sulfite-
reducing bacteria growing
under anaerobic conditions

16287 : 2015

Foodstuffs — Determination
of aflatoxin B1, and the total
content of aflatoxins B1, B2,
G1 and G2 in cereals, nuts
and derived products —
High performance liquid
chromatographic method**3 DESCRIPTION**

The *AJOWAN* fruits shall be the dried ripe fruits of the plant *Trachyspermum ammi* (Linn.) Sprague. The fruits shall be clean and wholesome, and shall have the characteristic colour, flavour and uniform size and shape. The material shall be free from foreign taste and flavour, as well as from any musty odour.

4 REQUIREMENTS**4.1 Freedom from Moulds and Insects Attack**

The *AJOWAN* fruits shall be free from living insects and moulds, and shall be practically free from dead insects, insect fragments and rodent contamination visible to the naked eye (corrected, if necessary, for abnormal vision) or with such magnification as may be necessary in any particular case. If the magnification exceeds $\times 10$, this fact shall be stated in the test report. The proportion of insect damaged matter shall not exceed 1 percent (m/m).

4.2 Extraneous Matter

Extraneous matter in *AJOWAN* fruits include inorganic matter like sand, earth and dust and organic matter like, stem, chaff, other fruits and any other vegetable matter. The proportion of extraneous matter in *AJOWAN* fruits when determined by the method specified in 4 of IS 1797, shall not exceed 2.0 percent (m/m).

4.3 Shrivelled, Damaged and Broken Fruits

The proportion of shrivelled, damaged, insect damaged and broken fruits in *AJOWAN* fruits when determined by physical separation and weighing, shall not exceed 2.0 percent (m/m).

4.4 *AJOWAN* fruits shall also conform to the requirements given in Table 1 and Table 2.

4.5 *AJOWAN* fruits shall be manufactured and packed under hygienic conditions (see IS 14216).

4.6 Pesticide residues and metallic contaminants in the product shall not exceed the limits as prescribed in the *Food Safety and Standards (Contaminants, Toxins and Residues) Regulation, 2011*.

5 PACKING AND MARKING

5.1 Packing

AJOWAN fruits shall be packed in clean, sound and dry container made of metal, glass, food grade polymers,

wood or jute bags. The wooden boxes or jute bags shall be suitably lined with moisture-proof lining which does not impart any foreign smell to the product. The packing material shall be free from any fungal or insect infestation and should not impart any foreign smell. Each container shall be securely closed and sealed.

5.2 Marking

The following particulars shall be legibly and indelibly marked or labelled on each container of *Ajowan* fruits:

- Name and address of the manufacturer or packer;
- Name of the material (whole or ground);
- Trade-name or brand name, if any;
- Batch or code number;
- Net quantity;
- Best before date;
- Year of the harvest (in case of whole);
- Date of packing (in case of ground); and
- Any other markings required under the *Legal Metrology (Packaged Commodities) Rules, 2011*, and the *Food Safety and Standards (Packaging and Labelling) Regulation, 2011*.

5.3 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the

Table 1 Requirements for *AJOWAN* Fruits
(Clauses 4.4 and 7)

SI No. (1)	Characteristic (2)	Requirement (3)	Method of Test, Ref to (4)
i)	Moisture, percent by mass, <i>Max</i>	11.0	9 of IS 1797
ii)	Volatile oil content on dry basis, ml/100 g, <i>Min</i>	1.5	15 of IS 1797
iii)	Total Aflatoxin, percent by mass, <i>Max</i>	30 µg/kg	IS 16287
iv)	Aflatoxin B1, percent by mass, <i>Max</i>	15 µg/kg	IS 16287

Table 2 Microbiological Requirements for *AJOWAN* Fruits
(Clauses 4.4 and 7)

SI No.	Characteristic	Requirement				Method of test, Ref to IS or ISO
		Sampling Plan ¹⁾		Limit (cfu/g)		
		n	c	m	M	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
(i)	<i>Salmonella</i>	5	0	Absent/25g	NA	IS 5887 (Part 3)
(ii)	<i>Bacillus cereus</i>	5	2	1 × 10 ³	1 × 10 ⁴	IS 5887 (Part 6)
(iii)	Sulphite Reducing Clostridia (SRC)	5	2	1 × 10 ²	1 × 10 ³	ISO 15213

¹⁾ For sampling plan see Annex A.

Bureau of Indian Standards Act, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

6 SAMPLING

Representative samples of the material shall be drawn and tested for conformity to this standard as prescribed in IS 13145.

7 METHODS OF TEST

The samples of *AJOWAN* fruits shall be tested for ascertaining conformity of the material to the requirements in accordance with the relevant clauses given in Table 1 and Table 2.

8 QUALITY OF REAGENTS

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

ANNEX A

[Table 2]

SAMPLING PLAN FOR MICROBIOLOGICAL REQUIREMENTS

A-1 SAMPLING PLAN FOR MICROBIOLOGICAL REQUIREMENTS

The terms n, c, m and M used in this standard have the following meaning:

- n = Number of units comprising a sample;
 c = Maximum allowable number of units having microbiological counts above m for 2 class sampling plan and between m and M for 3 class sampling plan;

m = Microbiological limit that separates unsatisfactory from satisfactory in a 2 class sampling plan or acceptable from satisfactory in a 3 class sampling plan; and

M = Microbiological limit that separates unsatisfactory from satisfactory in a 3-class sampling plan.

A-2 INTERPRETATION OF RESULTS

2-Class Sampling Plan (where n, c and m are specified)	3-Class Sampling Plan (where n, c, m and M are specified)
1. Satisfactory, if all the values observed are $\leq m$ 2. Unsatisfactory, if one or more of the values observed are $> m$.	1. Satisfactory, if all the values observed are $\leq m$ 2. Acceptable, if a maximum of c values are between m and M. 3. Unsatisfactory, if one or more of the values observed are $> M$ or more than prescribed c values are $> m$

ANNEX B*(Foreword)***COMMITTEE COMPOSITION**

Spices, Culinary Herbs and Condiments Sectional Committee, FAD 09

<i>Organization</i>	<i>Representative(s)</i>
Spices Board, Kochi	DR A. B. REMA SHREE, DIRECTOR RESEARCH (Chairman)
AB Mauri India Private Ltd, Cochin	MR V. M. HAROON MR PRAKASH NAMBOODIRI (<i>Alternate</i>)
All India Consumer Council, Gurugram	SHRI J. P. SINGH SAHNI SHRI KABIR SAHNI (<i>Alternate</i>)
All India Spices Exporters Forum, Cochin	SHRI CHERIAN XAVIER SHRIMATI PRIYAMVADA NILAYANGOD (<i>Alternate</i>)
Central Food Technological Research Institute, Mysore	DR M. MADHAVA NAIDU DR S. NAGARAJAN (<i>Alternate</i>)
Confederation of Indian Industry, New Delhi	MS NEHA AGGARWAL
Consumer Coordination Council, Noida	SHRI RAMJI BHAI MAVANI SHRI S. C. SHARMA (<i>Alternate</i>)
Defence Food Research Laboratory, Mysore	DR K. R. ANILAKUMAR SHRI DEV KUMAR YADAV (<i>Alternate</i>)
Directorate of Arecanut and Spices Development, Calicut	DR HOMEY CHERIYAN DR FEMINA (<i>Alternate</i>)
Directorate of Marketing and Inspection, Faridabad	JT AGRICULTURAL MARKETING ADVISER (QC) DY AGRICULTURAL MARKETING ADVISER (QC-II) (<i>Alternate</i>)
Export Inspection Council of India, New Delhi	SHRI WASI ASGHAR SHRI SHASHI PRAKASH TRIPATHI (<i>Alternate</i>)
Food Safety and Standards Authority of India, New Delhi	MS RUBY MISHRA
ICAR-Indian Institute of Spices Research, Kozhikode (Calicut)	DR N. K. LEELA DR E. JAYASHREE (<i>Alternate</i>)
Kerala Agricultural University, Kerala	DR SAJI GOMEZ DR SEEJA THOMACHAN PANJIKKARAN (<i>Alternate</i>)
National Institute for Inter Disciplinary Science and Technology (CSIR), Kerala	DR RAGHU K. G.
National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Sonapat	DR SUNIL PAREEK
National Research Centre on seed Spices, Ajmer	DR S. N. SAXENA DR B. K. MISHRA (<i>Alternate</i>)
Praveen Masalewale	SHRI ANAND CHORDIA MS ROHINI KULKARNI (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
Spices Board, Cochin	SHRI RAMESH BABU Ms C. M. SRI LATHA (<i>Alternate</i>)
World Spice Organization, Kochi	SHRI RAMKUMAR MENON SHRI PHILIP KURUVILLA (<i>Alternate</i>)
BIS Directorate General	SHRIMATI SUNEETI TOTEJA, SCIENTIST 'E' AND HEAD (FAD) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

Member Secretary
SHRIMATI NAVITA YADAV
SCIENTIST 'D' (FAD), BIS

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This Indian Standard has been developed from Doc No.: FAD 09 (16148).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones: 2323 0131, 2323 3375, 2323 9402

Website: www.bis.gov.in

Regional Offices:

Telephones

Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	{ 2323 7617 2323 3841
Eastern	: 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054	{ 2337 8499, 2337 8561 2337 8626, 2337 9120
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg CHANDIGARH 160019	{ 265 0206 265 0290
Southern	: C.I.T. Campus, IV Cross Road, CHENNAI 600113	{ 2254 1216, 2254 1442 2254 2519, 2254 2315
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Published by BIS, New Delhi